

Application No.: 10/064,830

Docket No.: JCLA9625-R

In the specification:

Please amend the claims as follows:

[0022] FIG.1 shows one preferred embodiment of incorporating rechargeable battery element LI/B 110, supercapacitor element S/C 112, and microprocessor 103 within a single housing of cylindrical shape 104 to form the integrated battery 100. There are four communication buses, 106, two for each element, between microprocessor 103 and rechargeable battery LI/B 110, as well as between 103 and supercapacitor S/C 112. Battery 100 has positive and negative terminals indicated by 101 and 102, respectively, on the exterior of housing 104. The communication bus 106 allows LI/B 110 and S/C 112 to perform complementary actions to each other through microprocessor 103, while insulator 105 provides hermetic seal to the components within the housing 104. Both ends of supercapacitor S/C 112 are further sealed with an edge sealer 107 so that S/C 112 can be bipolar and isolated from other components in the housing. A bipolar design has at least three electrodes with the middle one serving as anode and cathode simultaneously. As a matter of fact, a

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bipolar cell is a device that contains two cells or more in series connection without connecting cables. The open cell voltage of a bipolar cell is the sum of the voltages of cells constituting the bipolar device. Nevertheless, the electrolyte must remain in each cell and that is the main reason why edge sealer 107 is used. The dimension and capacity of supercapacitor S/C 112 relative to that of rechargeable battery LI/B 110 can be custom-made according to application needs.